



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/598,333

12/08/2006

Koji Tsuji

P30506

2746

7055 7590 03/17/2008
GREENBLUM & BERNSTEIN, P.L.C.
1950 ROLAND CLARKE PLACE
RESTON, VA 20191

EXAMINER

KWOK, HELEN C

ART UNIT

PAPER NUMBER

2856

NOTIFICATION DATE

DELIVERY MODE

03/17/2008

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

gbpatent@gbpatent.com
pto@gbpatent.com

Office Action Summary	Application No. 10/598,333	Applicant(s) TSUJI ET AL.	
	Examiner Helen C. Kwok	Art Unit 2856	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on August 24, 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>December 8, 2006</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Drawings

2. Figure 35 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Objections

3. Claims 2, 5-6, 8 and 15-16 are objected to because of the following informalities. Appropriate correction is required.

In claim 2, line 2, the phrase "said detection springs" should be changed to -- said detection spring --. In line 3, the phrase "the displacement direction" should be changed to -- a displacement direction --.

In claim 5, line 4, the phrase "the inner peripheral surface" should be changed to – an inner peripheral surface --. In line 6, the phrase "the outer peripheral surface" should be changed to – an outer peripheral surface --.

In claim 6, line 7, the phrase "the displacement direction" should be changed to – a displacement direction --.

In claim 8, line 4, what is the word "it" referring to? In line 5, the phrase "the displacement direction" should be changed to -- a displacement direction --.

In claim 15, line 5, the phrase "the displacement direction" should be changed to -- a displacement direction --.

In claim 16, lines 1-2, the phrase "the gyro sensors" should be changed to – the gyro sensor --.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claim 11 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 11, line 4, the phrase "said electrode wiring" lacks antecedent basis.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 1-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 6,915,693 (Kim et al.) in view of U.S. Patent 5,559,291 (Hasegawa) and U.S. Patent 6,928,872 (Durante et al.).

Kim et al. discloses a MEMS gyroscope comprising, as illustrated in Figures 9-12 (namely Figure 10), a primary base plate provided with a detection mass body 152; a driven mass body 151; a detecting element 120 such that the detection mass body is displaceably supported relative to a support base plate (i.e. substrate, not shown) in a plane along the support base plate through a detection spring 262 having one end fixed to the support base plate wherein the driven mass body 151 being connected to the detection mass body 152 through a drive spring 261 vibrates in a direction intersecting with the support base plate, the detecting element 120 detects a displacement amount of the detection mass body in the plane along the support base plate. (See, column 6, lines 7-39). The only difference between the prior art and the claimed invention is the detection spring extends from the detection mass body in only one direction to support the detection mass body relative to the support base plate in a cantilever manner.

Hasegawa discloses an angular velocity sensor comprising, as illustrated in Figures 1-

22, a detection spring 14 extending from a detection mass body 15 only in one direction in a cantilever manner. (See, column 4, line 47 to column 5, line 5). It would have been obvious to a person of ordinary skills in the art at the time of invention to have readily recognize the advantages and desirability of employing the detection spring in a cantilever spring as suggested by Hasegawa to the apparatus of Kim et al. to enhance the angular velocity detection sensitivity through reduction of noises. (See, column 2, lines 34-57 of Hasegawa).

With regards to claim 2, the references do not explicitly disclose the claimed configuration of the detection springs. However, other arrangement or configuration can be used without departing from the scope of the invention and is not necessarily limited to such shape.

With regards to claims 3-11 and 14-15, Kim et al. further discloses the driven mass body and the detection mass body are disposed parallel to one another with the drive spring is a torsionally deformable torsion spring disposed therebetween; movable comb-tooth segments 122 formed in the detection mass body; stationary comb-tooth segments 121 in opposed relation to a corresponding movable comb-tooth segments such that a change of capacitance measures a displacement amount of the detection mass body; stationary driving electrode 111 in opposed relation to a corresponding moving driving electrode 112. (See, column 5, line 18-50).

With regards to claim 12, the references do not explicitly specify such dimension (i.e. thickness) as in the claim. However, to have set such test characteristics as in the claim is considered to have been a matter of design choice that would have been

Art Unit: 2856

obvious to an artisan of ordinary skills in the art at the time of invention without departing from the scope of the invention.

With regards to claim 13, it is well known in the art to an artisan to employ a through-hole in the driven mass body to reduce the weight of the driven mass body which will change its bending stiffness.

With regards to claim 16, Durante et al. discloses a gyroscope comprising, as illustrated in Figures 1,5,7, an apparatus that includes two gyro sensors includes a signal processing section. (See, column 3, line 51 to column 4, line 67). It would have been obvious to a person of ordinary skills in the art at the time of invention to have readily recognize the advantages and desirability of employing two gyro sensors as suggested by Durante et al. to the apparatus of Kim et al. to provide a sensor which is moreover sensitive only to forces acting in its respective directions and rejects actions in a perpendicular direction to obtain high sensing precision. (See, column 9, lines 34-57).

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

The references cited are related to angular velocity sensor having a detection mass body and a driving mass body.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Helen C. Kwok whose telephone number is (571) 272-2197. The examiner can normally be reached on 8:30 to 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hezron E. Williams can be reached on (571) 272-2208. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Helen C. Kwok/
Primary Examiner, Art Unit 2856
March 5, 2008